

This chapter covers the following MTC skills: 5.7 Quiz

Feedback on performance is a critical part of a learning environment, and assessment is one of the most important activities in education. As educators, we can't tell what's going on inside students' heads, so we need a way for them to demonstrate what they understand and what they don't. A well-designed test, even a multiple-choice test, can give you valuable information about students' misconceptions. If the feedback is rapid enough, it can also be a critical tool for students to gauge their own performance and help them become more successful.

Moodle's quiz module is one of the most complex pieces of the system. The community has added a large number of options and tools to the quiz engine, making it extremely flexible. You can create quizzes with different question types, randomly generate quizzes from pools of questions, allow students to re-take quizzes multiple times, and have the computer score everything.

These features open up a number of strategies that usually aren't practical with paper-based testing. It's hard enough to score one batch of quizzes, and nearly impossible to score it 10 times for each student. When the computer does the work for you, it's easy to give students a chance to practice taking a test or give frequent small quizzes. We'll explore how to apply these advantages later in the chapter. For now, let's get started building your first Moodle quiz.

How to Create a Quiz

Moodle quizzes have two major components: the quiz body and the question pools. Think of the quiz bodies as containers for various types of questions from the question pools. The body is what students see when they take the assessment. It also defines how the students interact with the quiz. The questions in a quiz body can be of any type, chosen manually or at random, and displayed in a set or random order. The question pools can contain questions arranged in a manner that makes sense to you. You can create pools based on chapters in the textbook, weeks in the semester,

important concepts, or any other organizational scheme. Pools can be reused in multiple quizzes, shared between classes and courses, and even moved between systems.

To start, we need to create a body for our first quiz.

Creating the Quiz Body

When you create the quiz body, you are creating a container for the questions and setting the rules for interacting with the quiz.

To create a quiz body:

1. Click “Turn editing on.”
2. Select Quiz from the “Add an activity” drop-down menu in the course section where you would like to add the quiz.
3. In the “Adding a new quiz” page, as shown in Figure 6-1, give the quiz a descriptive name.
4. Write an introduction for the quiz. Be sure to include any special instructions for taking the quiz, such as the number of attempts allowed or scoring rules.
5. Select the timing options:

Open the quiz; Quiz closes

Choose opening and closing dates for the quiz.

Time limit

Determine how long students have to complete the quiz. At the end of the allotted time, the quiz is automatically submitted with the current answers.

Time delay between attempts

You can force a delay between multiple attempts of a quiz in order to prevent students from gaming the system by immediately answering the same questions.

6. Select the display options:

Questions per page

This sets the number of questions the students will see at once. If you have more questions than the number of questions per page, the students will see a navigation button at the bottom of the page where they can view the questions on other pages.

Shuffle questions

Set this to Yes to randomly order the quiz questions when they are displayed to the students.

Shuffle within questions

Set this to Yes to randomly order the parts making up individual multiple-choice or matching questions.

7. Select the attempts options:

Attempts allowed

Use this option to set the number of times a student can take a quiz. You can set it to unlimited times or to a number from 1 to 6.

Each attempt builds on the last

If you allow multiple attempts, you can choose to let students build their answers over time. If you set this to Yes, the student's responses from the last attempt will be visible the next time she tries to take the quiz.

Adaptive mode

In adaptive mode an additional Submit button is shown for each question. If the student presses this button, then the response to that particular question is submitted to be scored and the mark achieved is displayed to the student. The quiz will then allow the student to try again immediately, but a penalty will be applied to the score. The penalty is set in the Apply Penalties option.

8. Select the grades options:

Grading method

If you allow multiple attempts, you can choose which score is recorded. Your choices are highest grade, average grade, first attempt, and last attempt.

Apply penalties

This only applies if the quiz is run in adaptive mode.

Decimal digits in grades

Use this to set the number of decimal places in the grade for the quiz.

9. Select the options for students to review the quiz. You may choose whether to show students their responses together with their scores, the correct answers, and general and/or specific feedback:

Feedback

This is question response-specific text.

General feedback

This is text shown after attempting a question regardless of response given. It may be used to provide background information or perhaps a link to further information.

10. Select the security options:

Show quiz in a secure window

Selecting this option will open the quiz in a new window without the forward and back buttons, address bar, or other navigational features. This will prevent students from navigating to other sites during the quiz.

Require password

You can set a password for the quiz that students will need to enter before they can take the quiz. You can use this to restrict who takes a quiz and when they take it.

Require network address

This option restricts access to the test to certain IP address ranges. If you want to require students to take a test from a certain lab on campus, set the network address range to cover the networks in the lab. For example, if you want to require access from computers with an IP range of 10.10.10.0 to 10.10.10.50, you would enter 10.10.10.0/50. To allow access from all computers in a subnet (say, on the campus), enter the partial address you want to use.

11. Select the common module options:

Group mode

This is another location in which to set the group mode for the activity. If group mode is forced in the course settings then this setting will be ignored.

Visible

This determines whether students may view the activity or not.

12. Add overall feedback, i.e., text that is shown to a student after he has completed an attempt at the quiz. The text varies depending upon the quiz grade.
13. Click the “Save changes” button.



If you can't find some of the above options, try clicking the Show Advanced button. Your system administrator may have hidden certain options in order to simplify the page.

Once you have saved your changes, you'll see the second editing screen where you will write and select questions to include in the quiz body.

Creating Questions for a Quiz


You can create your quiz questions on the “Editing quiz” page. Here, you'll also categorize your quiz questions and add them to the quiz body you just created.





On the left of the page, as shown in Figure 6-2, you'll see a block displaying the questions you've added to the current quiz. Since this is a new quiz, there are no questions there, and Moodle tells us this.




















On the right of the page you'll see a category selection menu labeled Category and a button labeled “Edit categories.” Categories are used to organize your quiz questions for your course, and they can be containers for sharing questions between courses. By default, there is one category, called Default. If you click on the category menu, you'll see it as an option.



General

Name*


Introduction 


Trebuchet | 1 (8 pt) | Lang | **B** | *I* | U | \$ | x₂ | x² |  |  |  | 


 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 


Path:  


Timing

Open the quiz  17 | August | 2007 | 14 | 00 | Disable


Quiz closes  17 | August | 2007 | 14 | 00 | Disable


Time limit  0 Enable

Time delay between first and second attempt  None

Time delay between later attempts  None

Display

Questions per page  Unlimited

Shuffle questions  No


Shuffle within questions  Yes

Figure 6-1. Adding a new quiz



It's good practice to create categories to organize your questions.

Jason: The level of detail in the categories is up to you, but I tend to lean toward more detailed categories that I can combine into larger groups later if I want to. For example, I'll break down questions related to a reading into a couple of concepts. It's easier to clump questions together later than it is to pull them apart.

Let's start out by making a category to hold the questions for our quiz:

1. From the "Editing quiz" page, click on the "Edit categories" button.
2. Above the list of current categories, as shown in Figure 6-3, you will see a space to add a new category.
3. Choose which category to place your new category in. If no other categories have been created, only Top will be available.

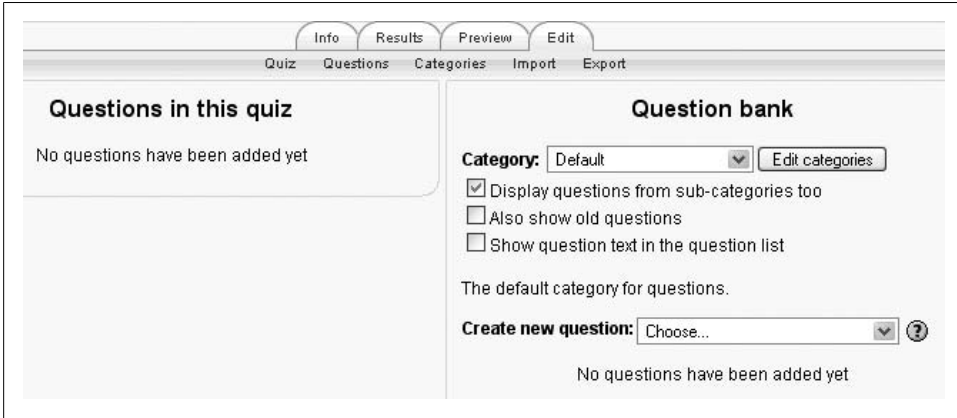


Figure 6-2. Adding questions

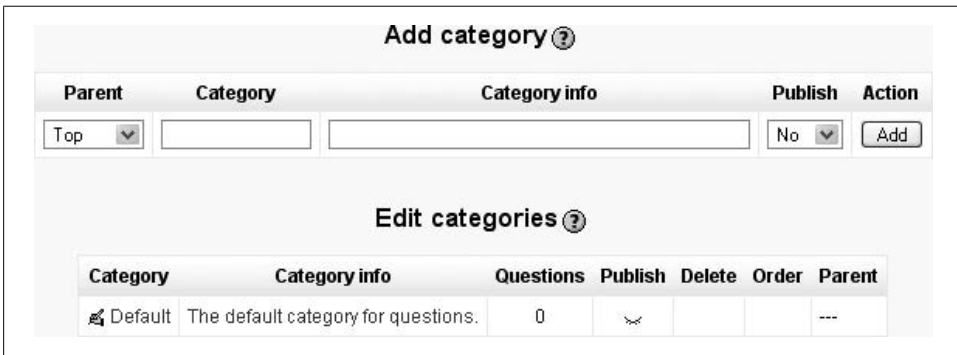


Figure 6-3. Edit categories

4. Type the name of your new question category in the text box.
5. Add a meaningful description in the “Category info” area.
6. If you’d like to share your question with teachers of other courses on your Moodle site, select Yes in the Publish column.
7. Click the Add button. Your new question category will appear in the list of current categories.
8. When you are done adding categories, click on the Quiz link below the tabs to return to the “Editing quiz” page.

Once you’ve created your categories, it’s time to add some questions:

1. From the “Editing quiz” page, select a category to which you want to add a question. The area below the category will display the question-creation block.

2. Select the question type you want to create from the “Create new question” drop-down menu:

Multiple choice

Both single- and multiple-answer multiple-choice questions are possible.

True/false

This is a simple multiple-choice question with only two possible answers.

Short answer

Students answer this question by typing a word or phrase. You need to provide a list of acceptable answers.

Numerical

This is a short-answer question that accepts a numerical value instead of a word.

Matching

This is a standard two-column matching question.

Random short-answer matching

The subquestions for the matching exercise are randomly drawn from short-answer questions in the category.

Description

This is for embedding some text in the quiz. (It’s not a question type.) It can be used to give mid-quiz instructions.

Calculated

This is a mathematical equation with placeholders for values that will be pulled randomly from a dataset when a student takes the quiz.

Essay

This is a question requiring a paragraph or two of text. Students are not assigned a grade until you have reviewed and manually graded the question.

Embedded answers (Cloze)

This is a question with multiple question types embedded within it, such as multiple choice, short answers, and numerical.

3. Fill in the form for the question type you are creating.
4. Click the “Save changes” button at the bottom of the form.

Each question type has its own form and options. We’ll spend the next few pages detailing the options for each question type.

Multiple-choice questions

Moodle provides you with a lot of flexibility when creating this common question type. Figure 6-4 shows an example question. You can create single- and multiple-answer questions, display pictures in the question, and give relative grading weights to individual answers.

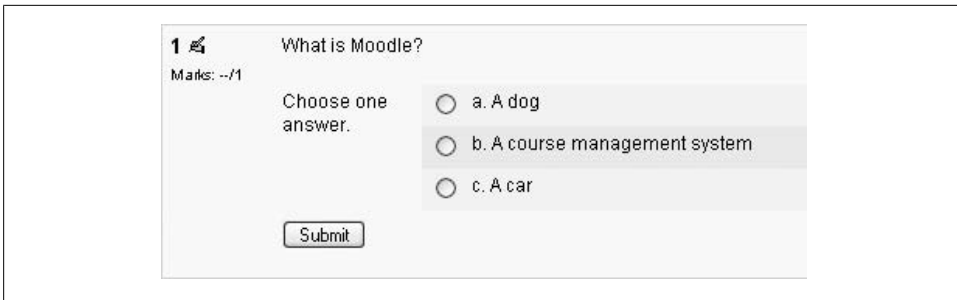


Figure 6-4. A multiple-choice question

To create a multiple-choice question:

1. Select “Multiple choice” from the “Create new question” drop-down menu.
2. On the multiple-choice question-editing page, start by giving the question a descriptive name. You’ll use the name to track your questions later, so “Question 1” isn’t a good idea.
3. Create the question text. If you’re using the HTML editor, you can format the question just like a word-processing document.

If you want to add an image to the question, you have two options:

- If you’ve already uploaded an image to your files area (see Chapter 3 for details), it will be available to add to the question stem in a drop-down menu under the Question text area.
 - If you’re using the HTML editor, you can click the image icon. This will pop up the Insert Image window. You can choose to upload an image into your files area from this window or add the URL of an image on the Web. If you add a file to your files area, click the name of the file after you upload it to insert the link into the URL text entry at the top of the screen. Then click OK.
4. Set the default question grade.
 5. If you are intending to run the quiz in adaptive mode, set the penalty factor for each wrong response. The penalty factor should be a number between 0 and 1. A penalty factor of 1 means that the student has to get the answer right in her first response to get any credit for it at all. A penalty factor of 0 means the student can try as often as she likes and still get the full marks.
 6. If you wish, add general feedback, i.e., text shown after attempting a question regardless of response given. General feedback will be displayed only if selected in the options for students to review the quiz.
 7. Choose whether students can select only one answer or multiple answers.
 8. Choose whether answers should be shuffled.
 9. Write your first response in the Choice 1 answer field, as shown in Figure 6-5.

The image shows a quiz editor interface with two choice answer fields. Each field consists of an 'Answer' input box, a 'Grade' dropdown menu (set to 'None'), and a 'Feedback' text area. A rich text editor toolbar is visible between the two choice fields, featuring various text formatting options like bold, italic, underline, and link, as well as alignment and list tools.

Figure 6-5. A choice answer field

10. Select a grade percentage for the answer. This is the percentage of the total points possible for the question, selecting a given answer is worth. You can select negative percentages as well as positive percentages. So if a question is worth 10 points, selecting one correct response out of two in a multiple-choice question may give you 50 percent of the possible points (i.e., 5 points). Selecting a wrong answer may take away 10 percent (i.e., 2.5 points).
11. If you wish, you can add feedback for each response. Feedback will be displayed only if selected in the options for students to review the quiz.



It may be a bit more work, but it's good practice to tell the students why each answer is right or wrong using the feedback area. If students know why an answer is right or wrong, they can analyze their own thinking and begin to understand the question.

12. Fill in the response choices in the rest of the form. Any unused areas will be ignored.
13. If you wish, you can add overall feedback for any correct/partially correct/incorrect answer. This is especially useful for multiple-answer questions where it is difficult to control what feedback students receive just using the answer-specific feedback.
14. Click the “Save changes” button to add the question to the category.



2  What is Moodle?
Marks: --/1
Answer:

Figure 6-6. A short-answer question

Short-answer questions

Short-answer questions require the student to type an answer to a question, as shown in Figure 6-6. The answer could be a word or a phrase, but it must match one of your acceptable answers exactly. It's a good idea to keep the required answer as short as possible to avoid missing a correct answer that's phrased differently.



You may find it helpful to prototype your short-answer questions to catch common acceptable answers you hadn't thought of. To do this, start by creating a few acceptable answers and include the question in a quiz for no points. Be sure to tell students you are testing a new question. Once the quiz is over, review students' answers and add their acceptable answers to the list.

To create a short-answer question:

1. Select “Short answer” from the “Create new question” drop-down menu.
2. Give your question a descriptive name.
3. Create the question text. If you want students to fill in a blank, use the underscore to indicate where the blank is.
4. Select an image to display if you want to add a picture to the question (see step 4 in the previous section for more details).
5. If you wish, add general feedback.
6. Choose whether capitalization is important. Case-sensitivity can be tricky. Will you accept “george Washington” as well as “George Washington” as an answer?
7. Fill in the answers you will accept. Give each answer a percentage of the grade if required. You could give common misspellings partial credit with this option.
8. Add feedback for each acceptable answer.



You can provide feedback for all wrong answers by using a wildcard—the asterisk character (*)—as an answer with a grade of “none.”

9. Click the “Save changes” button to add the question to the category.

Figure 6-7. A numerical question

Numerical questions

Numerical questions are a lot like short-answer questions for equations, such as the one shown in Figure 6-7. You can create a question with an equation, and your students type in a numerical answer. Students will get credit for answers within the range of answers you specify.


To create a numerical question:

1. Select Numerical from the “Create new question” drop-down menu.
2. Give the question a descriptive name.
3. Type the equation or numerical question for your students to solve. Moodle has a couple of text filters, called Algebra and TeX, that allow you to type an equation and have it properly typeset when displayed. You may need to ask your system administrator to enable the filters.
4. Select an image to display if you want to add a picture to the question (see step 4 in the section “Multiple-choice questions” for more details).
5. If you wish, add general feedback.
6. Enter the correct answer and grade. You may choose to add a number of correct answers with different levels of accuracy and corresponding different levels of credit.
7. Enter the accepted error, i.e., the range above or below the correct answer. For example, if the correct answer is 5, but you will accept 4 or 6 as answers, your accepted error is 1.
8. Add feedback for each acceptable answer.



As for short-answer questions, wrong-answer feedback may be provided using a wildcard.

9. If you want to accept answers in multiple units (e.g., metric or imperial units), specify the unit multiplier and the unit label in the areas.
10. Click the “Save changes” button to add the question to the category.

4  Match the term to its definition.

Marks: --/1

Moodle

Firefox

Quiz

Figure 6-8. A matching question

Matching questions

Matching questions ask students to match multiple question stems to multiple possible answers (see Figure 6-8). They are useful for testing students’ understanding of vocabulary and their ability to match examples to concepts. Setting up a matching question in Moodle is a bit different from setting up other types of questions.

To create a matching question:

1. Select Matching from the “Create new question” drop-down menu.
2. Give the question a descriptive name.
3. Enter the question text to tell the students what they are matching.
4. Select an image to display if you want to add a picture to the question (see step 4 in the section “Multiple-choice questions” for more details).
5. If you wish, add general feedback.
6. For the first matching item, enter the question and a matching answer.
7. Fill in at least three questions and answers. You can enter as many as 10 items. You can provide extra wrong answers by giving an answer with a blank question.
8. Click the “Save changes” button to add the question to the category.

Moodle will display the question in two columns. The first will contain the questions. The second will display a drop-down menu for each question with all possible matching answers as options.



Matching questions look better on screen if you put the longer piece of text in the question rather than the matching answer. For example, when vocabulary-matching, put the single word in the answer and the definition sentence in the question. Otherwise, the drop-down menu for long questions will be awkward to use and difficult to read.

Random short-answer matching questions

This is an interesting question type. You take random multiple short-answer questions and their correct answers and create a matching question out of them. It's an interesting way to reuse your short-answer questions in a new format.

To create a random short-answer matching question:

1. Select “Random short-answer matching” from the “Create new question” drop-down menu.
2. Give the question a descriptive name.
3. Enter the question text to tell the students what they are matching, or use the default text.
4. If you wish, add general feedback.
5. Select the number of questions you want to add to the matching question.
6. Click the “Save changes” button to add the question to the category.

Calculated questions

A calculated question is a mathematical equation with placeholders for values that will be pulled randomly from a dataset when a student takes the quiz. For example, if you wanted to create a large number of multiplication problems to drill your students, you could create a question with two placeholders and a multiplication sign such as $\{a\} * \{b\}$. When a student takes the test, Moodle will randomly select values for a and b. The test will very rarely appear the same way twice.

To create a calculated question:

1. Select Calculated from the “Create new question” drop-down menu.
2. Give the question a descriptive name.
3. Enter your question into the question field. All variables you want Moodle to replace with generated values must be placed in curly braces.
4. If you wish, add general feedback.
5. Enter the formula for the answer (see Figure 6-9). Be sure to use the same placeholders so Moodle can substitute the same values.
6. Determine the tolerance for error that you will accept in the answer. The tolerance and tolerance type combine to give a range of acceptable scores.
7. Select the number of significant figures or decimal places you want in the correct answer.
8. Add correct answer feedback.
9. Enter the units for the answer (e.g., meters, kg, etc.). Moodle will look for the correct units. If you want to enter other acceptable units, such as metric versus imperial distances, enter them along with a conversion factor.

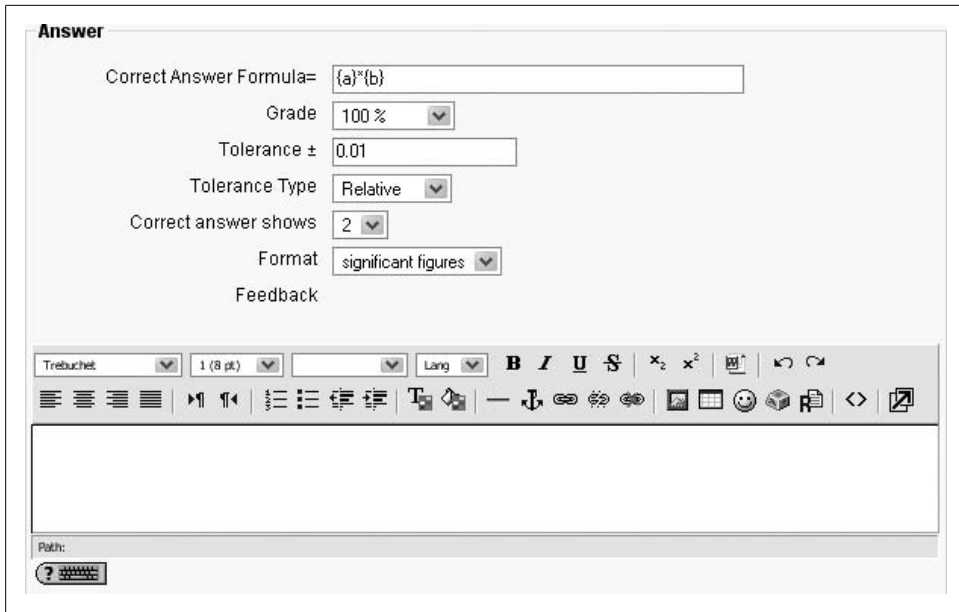


Figure 6-9. A calculated question answer field

10. Click the “Next page” button.
11. On the next page, choose whether to create substitution values for each placeholder only for this question, or for other questions in the same category.
12. Click the “Next page” button.
13. Create a dataset for the question or questions in the category. For each placeholder, generate a series of acceptable values. The more values you generate, the more a question can be used without repeating values. Figure 6-10 illustrates the interface for datasets for calculated questions.
14. Click the “Save changes” button.

Calculated questions can use more than simple arithmetic operators. The full list of operators includes abs, acos, acosh, asin, asinh, atan, atanh, ceil, cos, cosh, deg2rad, exp, expm1, floor, log, log10, log1p, rad2deg, round, sin, sinh, sqrt, tan, tanh, atan2, pow, min, max, and pi. Each function’s placeholders and other arguments are in parentheses. For example, if you want students to calculate the sine of one angle and two times the cosine of another, you would enter $\sin(\{a\}) + \cos(\{b\} * 2)$.

Essay questions

An essay question is a free-response text area where students can enter larger blocks of text in response to your question, as shown in Figure 6-11. These questions are not scored by the computer, and you will need to grade each answer manually.

Item To Add

Param {a}

Range of Values -

Decimal Places

Distribution

Param {b}

Range of Values -

Decimal Places

Distribution

{a}*{b} 3.1*1.7 = 5.27
Min: 5.2172999999---Max: 5.32270000001

Add

Next 'Item to Add' reuse previous value if available
 force regeneration

item(s)

You must add at least one dataset item before you can save this question.

Figure 6-10. Editing calculated question datasets

To create an essay question:

1. Select Essay from the “Create new question” drop-down menu.
2. Give the question a descriptive name.
3. Enter the question text.
4. Select an image to display if you want to add a picture to the question (see step 3 in the section “Multiple-choice questions” for more details).
5. If you wish, add general feedback and/or specific feedback.
6. Click the “Save changes” button to add the question to the category.

Embedded answers (Cloze)

Embedded answer (Cloze) questions consist of a passage of text (in Moodle format) that has various answers embedded within it, including multiple choice, short answers, and numerical answers.

There is currently no graphical interface to create these questions—you need to specify the question format using the text box or by importing it from external files.

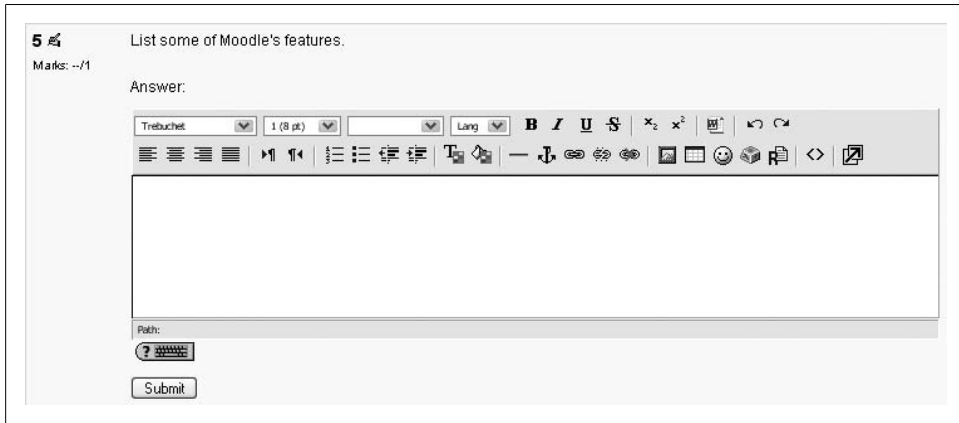


Figure 6-11. An essay question

The Embedded Answers (Cloze) Moodle documentation page describes the syntax required to embed answers.

To create a Cloze question:

1. Select “Embedded answers (Cloze)” from the “Create new question” drop-down menu.
2. Type the question text with embedded answers.
3. Continue to add text and embed questions until complete.
4. Click the “Save changes” button to add the question to the category.
5. Add the question to the quiz, then preview it, using the edit icon next to the question number to make additional edits if required.

Importing Questions

If you have questions from a textbook question bank, or if you don’t want to use the web interface to create your questions, you can import them from a text file. Moodle supports a range of formats and provides an easy way to create new importers if you know a little PHP.

Once you get to know a format, it may be easier to type the questions into a text file than to use the web interface. You can just keep typing instead of waiting for new web pages to load for each question.

The default formats include:

GIFT

With GIFT format, you can write multiple-choice, true/false, short-answer, matching, and numerical questions.

Missing word

If you're going to write a lot of missing-word multiple-choice questions, the missing-word format is an easy way to create them.

Blackboard

If you're converting from Blackboard to Moodle, you can export your course and import the question pools into Moodle using the Blackboard format.

WebCT

Currently, the WebCT format supports only the importing of multiple-choice and short-answer questions.

Course Test Manager

This format enables you to import questions from the Course Test Manager from Course Technology.

Embedded answers (Cloze)

The Cloze format is a multiple-answer question with embedded answers. These questions can be a bit tricky to develop, but they provide a unique approach.

Moodle XML

This Moodle-specific format imports quiz questions that have previously been exported in the same format. It allows you to import image files used in the questions.

To import questions:

1. From the Question-editing page, click the Import link just below the tabs in the middle of the page.
2. In the "Importing questions" page, as shown in Figure 6-12, select a category into which the imported questions will go.
3. Select a file format. The help pop up next to the file format drop-down menu contains further details of each format.
4. Choose "Nearest grade if not listed" from the "Match grades" drop-down menu. Otherwise, a question will not be imported if its grade is not included in the list of accepted grades found in the help pop up.
5. Either browse for an import file on your computer and click the "Upload this file" button, or use the "Choose a file" button to browse for a file in your course files area and then click the "Import from this file" button.

Exporting Questions

You can share questions you have created by exporting them to a text file. Possible export formats are to GIFT, IMS QTI 2.0, Moodle XML, and XHTML.

To export questions:

1. From the "Editing question" page, click the Export link just below the tabs in the middle of the page.

' (checkbox), 'File format: GIFT format' (dropdown), 'Match grades: Error if grade not listed' (dropdown), and 'Stop on error:

Figure 6-12. Importing questions

2. Select a category from which the exported questions will be taken.
3. Select a file format. The export questions page in the Moodle documentation contains links to further information on each export format.
4. Click the “Export questions to file” button.

The export file will be saved in your course files area in the backupdata folder.

Adding Questions to a Quiz

Once you’ve created your questions, you need to add them to the quiz.

On the “Editing quiz” page, as shown in Figure 6-13, click on the “Add to quiz” icons (<<) to add individual questions, or select a number of questions using the checkboxes and then click the “Add to quiz” button below the question list.

If you want to add all of the questions you created to the quiz, click the “Select all” link and then click the “Add to quiz” button.

Once you’ve added a question to the quiz, it appears on the left side of the page in the quiz question list. The question is still selectable on the right, but you can add it to the quiz only once. If you select the question in the category list again and add it to the quiz, nothing will happen.

If you have created a lot of questions, you may want to sort the question list by type and name or by age. You can also choose to display the question text below each

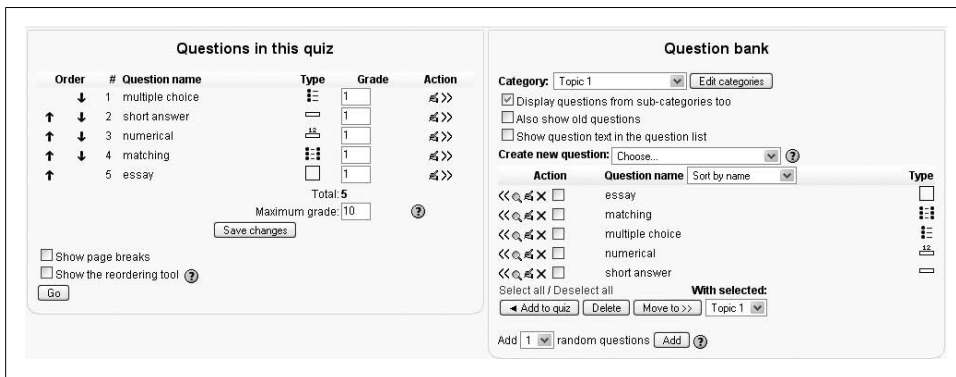


Figure 6-13. Editing a quiz

question name by checking the box “Show question text in the question list” above the question list.

Once you’ve added the questions to the quiz, you can change the order of the questions by clicking the arrow buttons in the Order column on the left side of the list of quiz questions.

If you have more than just a few questions, it’s a good idea to limit the number of questions displayed per page. Check the box “Show page breaks,” then set how many questions should be displayed per page and click the Go button.

You will also need to set the grade for each question. You can set the number of points for each question in the Grade column. You may want to make certain questions or question types worth more than others. Remember, the questions will be weighted to match the total points possible for the quiz you set in the quiz body. You should also set the “Maximum grade” for the whole quiz. This does not have to be equal to the sum of the grades for the individual questions. The grades achieved by the students will be rescaled to be out of this maximum grade. When you’re done, click the “Save changes” button.

You can preview the quiz by clicking on the Preview tab at the top of the page. If you answer the questions, you can submit the quiz by clicking the “Submit all and finish” button and see the feedback and responses your students will see, as shown in Figure 6-14. Your students will see two scores at the top of the page. The first is the raw score representing the total points they scored out of the maximum possible points from each question. The second score is the weighted score representing the number of points out of the maximum possible points for the quiz.

If you’ve enabled feedback after answering, each question will be displayed below the scores with the answers marked correct or incorrect. If you’ve enabled the display of correct answers, they will appear highlighted.

In the next section, we’ll discuss how to manage your quizzes.

Started on:	Tuesday, 21 August 2007, 05:35 PM
Completed on:	Tuesday, 21 August 2007, 05:36 PM
Time taken:	1 min 43 secs
Raw score:	3/5 (60 %)
Grade:	6 out of a maximum of 10

1 What is Moodle?
Marks: 1/1

Choose one answer.

a. A dog

b. A car

c. A course management system

Correct
Marks for this submission: 1/1.

2 What is Moodle?
Marks: 0/1

Answer:

Incorrect
Correct answer: CMS
Marks for this submission: 0/1.

Figure 6-14. Quiz preview

Random questions

A random question is a placeholder for a randomly selected question. One of the advantages of a computer-generated quiz is the ability to generate a quiz from questions randomly selected from a category. Each random question will pull a question randomly from the question category and insert it into the quiz. This means that different students are likely to get a different selection of questions. When a quiz allows multiple attempts for each student then each attempt is likely to contain a new selection of questions. The same question will never appear twice in an attempt. If you include several random questions then different questions will always appear for each of them. If you mix random questions with nonrandom questions then the random questions will be chosen so that they do not duplicate one of the nonrandom questions. This means that you need to provide enough questions in the category from which the random questions are chosen, otherwise the student will receive a friendly error message. The more questions you provide the more likely it will be that students get different questions on each attempt.

To add random questions to the quiz:

Info Results Preview Edit
Overview Regrade Manual grading Item analysis

2 Students have made 3 attempts

<input type="checkbox"/>	First name / Surname	Started on	Completed	Time taken	Grade/10
<input type="checkbox"/>	Sam Student	21 August 2007, 05:53 PM	21 August 2007, 05:53 PM	27 secs	8
<input type="checkbox"/>	Larry Learner	21 August 2007, 05:54 PM	21 August 2007, 05:54 PM	12 secs	4
<input type="checkbox"/>		21 August 2007, 05:55 PM	21 August 2007, 05:56 PM	56 secs	4

Select all / Deselect all

?

Display options:

Attempts shown per page:

▾

Show mark details

Figure 6-15. Quiz results

1. Select the number of random questions you wish to add from the drop-down menu below the question list.
2. Click the Add button.

Managing Quizzes

Once students start to take the quizzes, you'll have a lot of data available. If you click on the quiz link in the middle column of your course page, you'll immediately see the number of quizzes that your students have completed. If you click on the Results tab, you'll see the quiz results overview page, as shown in Figure 6-15. From here, you can see every quiz attempt and drill down into the individual responses. Clicking on the date and time of the attempt provides each question and answer.

If you want to delete an attempt, click on the checkbox next to the student's name and then select Delete from the drop-down menu below the attempts list.



If you decide to add additional questions to the quiz, you will need to delete all attempts before being allowed to do so.

There is a choice of three formats for downloading the table of results: Open Document Spreadsheet, Excel, or text.

If you want to see the marks for each question, check the "Show mark details" box, then click the Go button.

Above the attempts list, there are four links. The first link, Overview, shows the list of completed attempts you saw when you first clicked on the completed quiz link.

The next link, Regrade, is for recalculating quiz grades if you have changed the possible number of points for the quiz or a question.



If your students come up with a correct answer to a short-answer question that you had not previously thought of, you can edit the short-answer question, then regrade the quiz.

The third link, “Manual grading,” is for grading essay questions. In addition to giving each essay question attempt a grade, you can also provide feedback by writing a comment.

The fourth link is “Item analysis,” as shown in Figure 6-16. This is a great tool for evaluating the reliability of your questions. You can see the three most common answers to each question, the percentage of students who got each question correct, the standard deviation, the discrimination index, and the discrimination coefficient. The discrimination index correlates students’ overall performance on the quiz to their performance on each item; stronger students should have a better chance of getting each individual question correct, and weaker students should have a lower chance of getting each item correct. If the distribution of correct and incorrect responses is flat (everyone has an equal chance of being correct), then everyone is guessing. If everyone is getting it right (or wrong), then the question is too easy (or too hard). The higher the discrimination index, the better the question is at providing useful data about student performance.

Below the item analysis table are various analysis options, such as restricting the analysis to students’ first attempts. Low scores, perhaps for trial attempts, may be rejected by setting a low limit for the score of the attempts to analyze.

Again, there is a choice of formats for downloading the item analysis table for further analysis.

Quiz Capabilities

The quiz module has a range of capabilities that allow you to create a number of student roles:

View quiz information

This allows a user to view the quiz introduction but not attempt the quiz itself.

Attempt quizzes

This allows a user to attempt the quiz as well as view the quiz introduction.

Q#	Question text	Answer's text	partial credit	R. Counts	R.%	% Correct Facility	SD	Disc. Index	Disc. Coeff.
(16)	multiple choice : What is Moodle?	A course management system	(1.00)	4/4	(100%)	100 %	0.000	-0.50	-999.00
		A dog	(0.00)	0/4	(0%)				
		A car	(0.00)	0/4	(0%)				
(17)	short answer : What is Moodle?	CMS	(1.00)	2/4	(50%)	50 %	0.577	0.50	0.61
		course management system	(0.00)	0/4	(0%)				
(18)	numerical : What is 2 + 2?	4 (4..4)	(1.00)	2/4	(50%)	50 %	0.577	0.00	0.43
(19)	matching : Match the term to its definition.	Moodle: A CMS	(1.00)	1/4	(25%)	25 %	0.500	0.50	0.65
		Quiz: An activity in Moodle	(1.00)	1/4	(25%)				
		Firefox: A web browser	(1.00)	1/4	(25%)				
(22)	essay : List some of Moodle's features.		(0.00)	0/4	(0%)	13 %	0.250	0.00	0.05
		Moodle has quizzes!	(0.00)	1/4	(25%)				

Analysis options:

Attempts to analyze per user:

Don't analyse if score is less than: %

Questions per page:

Figure 6-16. Item analysis

Manage quizzes

This allows a user to edit and delete quizzes. Editing quizzes allows the user to add and subtract questions and change the quiz settings.

Preview quizzes

This allows a user to preview the quiz as part of the editing process.

Grade quizzes manually

This allows a user to change the scores on a quiz, and manually grade quiz essay questions.

View quiz reports

This allows a user to see the reports detailing user responses and question statistics.

Delete quiz attempts

This allows a user to delete both their own and other users' quiz attempts.

Ignores time limit on quizzes

A user with this capability can take as long as he wants to complete a quiz.



You may wish to allow the capability “Ignores time limit on quizzes” for students with learning disabilities that require they be given additional time to take assessments.

Effective Quiz Practices

As we've seen, the Moodle quiz engine is a powerful, flexible tool for monitoring and diagnosing a student's understanding of certain types of knowledge. Using this tool effectively can boost your course's effectiveness and promote student performance. While a computer-scored quiz is a different evaluation than more open-ended assessments, it does give valuable insight into student thinking, especially when you use good strategies and a little creativity.

Quiz Strategies

Of course, using the quiz engine effectively takes some work and practice. The first thing to do is use effective question-design strategies. If you ask good questions, you'll get useful data about your students' performance and understanding of the material. Of course, the converse is also true. There is a ton of literature about effective assessment design available. We'll just highlight a few of the most important ideas:

- Tie each question to a course goal. After all, you want to know whether your students are achieving the goals of the course, so why not ask them directly?
- Try to ask multiple questions about each important idea in the class. This gives you more data points about a student's understanding.
- When writing a multiple-choice question, be sure each wrong answer represents a common misconception. This will help you diagnose student thinking and eliminate easy guessing.
- Write questions requiring your students to think at different levels. Include recall questions, comprehension questions, and application and analysis questions. You can determine where students are having problems in their thinking. Can they recall the material but not apply it?
- Test your questions. After you've established an initial question bank, use item analysis to determine which questions are useful and which aren't. As you write new questions, give them a lower point value and throw in a few to establish their reliability.

Once you have a few well-written test banks, be sure to use the quiz reports and statistics to monitor your classes' performance. The detailed reports and statistics are valuable tools for measuring your students' understanding of the material.

Creative Quiz Uses

With the Moodle quiz engine, it's easier to utilize educationally sound assessment strategies that would be too difficult to implement with paper and pencil. Most people think of tests as an infrequent, high-stakes activity, such as midterms and finals. Better

strategies involve frequent, low-stakes assessments you and your students can use to guide student performance during the course of the semester.

Creating a series of mini-tests gives you a very flexible system for gauging performance and keeping students engaged in the class. Here are a few ideas for quick quizzes you can use as part of a larger assessment strategy.

Chapter checks

Getting students to complete reading assignments has to be one of the hardest motivational tasks in education. Reading is critical to understanding most material and fundamental to success in many classes. The problem for most students is that there is no immediate punishment for procrastinating on a reading assignment. If they haven't done the reading for a class discussion, they can either keep quiet or skim-read it in class. There's almost no need to do the reading for a lecture course, since the lecturer usually covers most of the material in class anyway.

Creating a mini-test for each reading assignment solves a number of problems. First, it encourages students to do the reading so they can do well on the quiz. Second, it gives the students feedback on how well they understood the reading assignment. Third, it gives you data about which aspects of the reading students found confusing, and which they have already mastered, so you can refocus your class activities.

For a reading mini-test, setting a limited-time quiz that students can take only once is recommended. Because it's a low-stakes activity that students should use for self-assessment, you could also display feedback and correct answers. If you're concerned about students sharing answers after they've taken the quiz, randomize the question and answer order. If you have a test bank, make some of the questions random as well. As an additional assignment, you could ask students to write down one question about a question they got wrong and bring it to class.

Test practice

The key to effective practice is to have a realistic practice environment. Many students worry about tests, especially high-stakes tests, because they have no idea what to expect. What question format will you use? How detailed will the questions be? What should students study?

You can help alleviate test anxiety by creating a practice test students can take to help answer these questions. These tests are usually based on old questions similar to the upcoming test questions. Using last year's final as an example test will force you to write new questions every year. This is a good idea anyway, since you can be sure someone has a copy of last year's test and is sharing it with others.

To set up a practice test, you could create a zero-point test with questions from the year before in random order with random answers. You could also allow students to take

the test as many times as they like so they can test themselves as much as they need. Display feedback, but not correct answers, so the test presents more of a challenge.

Data gathering

As an expert, you know a lot about your field. Your challenge as a teacher is to translate your knowledge for a novice who doesn't share your conceptual understanding or experience. An example or lecture you think is brilliant may leave your students completely confused. It can be hard to tell what students really understand and what's leaving them baffled.

A data-gathering quiz is similar to a chapter check, but it takes place after a class meeting or lecture. Your goal is to quickly get some feedback on your students' understanding of a lecture. What did they really understand? What do you need to spend more time on? It can be difficult to gauge what students find difficult and what they find so easy that it bores them.

Setting up a post-class data-gathering quiz is similar to creating a chapter check. Set the quiz for a limited time, such as a day or two before the next meeting. Allow your students to take it once and display feedback and correct answers.

Progressive testing

A very nice example of using the new feedback system with other options is the idea of progressive testing. To implement this, you need to create a series of increasingly difficult quizzes. The first quiz should be open to anyone, with the later quizzes protected by a password. In the feedback for each quiz, decide a cutoff percentage which you feel represents mastery of the skills tested. If the students' score is greater than the cutoff score, the feedback message includes a link to the next quiz with the appropriate password.

In this way, students gradually have access to increasingly difficult tests, and it allows them to concretely demonstrate their progress. But they don't become frustrated with questions that are too difficult.

Quiz Security and Cheating

Of course, online testing also presents another chance for the cheaters in your classes to try to game the system. Most online quizzes are meant to be taken at home, or at least outside of class. Students can download the questions and print them out. They can take the tests with other students or while reading their textbooks.

Fortunately, you can counter many of these strategies, making them more trouble than they are worth. Let's look at a few strategies for countering most cheating schemes:

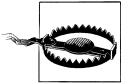
Printing and sharing questions

If you display feedback and correct answers, students can print the results page and share it with their friends. Or they can simply print the questions themselves directly from the quiz. The key to discouraging this behavior is to randomize the question order and answer order. It makes the printouts a lot less useful. Creating larger question banks and giving tests with random subsets is also an effective strategy. If students can print only a small number of questions at a time, they will need to view the test again and again, and then sort the questions to eliminate duplicates.

Using the textbook

Students will frequently look up the answer to questions in the textbook or a reading. If you are giving a chapter-check quiz, then this is what you want them to do. Otherwise, you need to come up with creative ways to make the textbook less directly useful. Timed quizzes are the single most effective tool for eliminating this strategy. If you include enough questions and make the time to take the quiz short enough, students won't have time to look up all the answers.

Jason: I usually allot about 30 seconds per multiple-choice question. If they answer them faster and have time to look up some answers afterward, I figure they knew enough to deserve the option of looking up an answer or two.



Assume there will be printed copies of your questions available to students who want them. Most instructors don't realize students frequently have copies of old paper-based tests, and delivering a test electronically is another way for students to get copies of the questions.

Jason: I know one professor who had over 1,100 questions in his online test bank. At the end of the semester, he confiscated a printout from a student. It had every question with the correct answer, neatly formatted and divided by textbook chapter. We decided if students wanted to memorize 1,100 questions to the level where they could answer a small number of them displayed at random, then they would have learned more than if they had just studied. Of course, we used timed quizzes and other strategies to minimize using the printout as a reference manual.

Asking students to apply their knowledge to novel situations can also make a difference. Synthesis and application questions can't be looked up. Students have to understand the material and apply it creatively to answer the questions. So while they may take the time to review the text, they will still need to understand what they've read to successfully answer the question.

Working with friends

If your students are on the same campus, they may meet in a lab and try to take the quiz together. This strategy is easily thwarted with random question order, random answer order, and random questions pulled from a test bank. If my screen

doesn't look like yours, then it's harder for us to quickly answer all of the questions. A timed quiz also makes it harder for the two of us to cheat if we have different questions and only a short amount of time to answer.

Have someone else take the test

The old adage goes, "On the Internet, no one knows you're a dog." And no one knows who is actually taking the test. Students will sometimes pay classmates, or others who have taken the course in the past, to take online quizzes for them. There are two ways to counter this strategy. One, have an occasional proctored exam where students need to show ID. If they haven't taken the quizzes or done the work until then, they will do poorly on the proctored exam. Second, to eliminate current classmates from taking each other's quizzes, make them available only for a short time. You could require everyone to take the test within a two- to four-hour block. If the test is properly randomized, it will be very difficult to take it more than once during the testing period. The test-taker will worry about her own grade first, then about her employer's grade.

Obviously, there are many strategies students can use to cheat. While it would be naïve to assume there isn't cheating, the vast majority of your students want to succeed on their own merits. The anonymity of the online environment may open up new avenues for the cheaters, but it's not really much different from your face-to-face classes. A few people will go to great lengths to cheat, but most will be honest as long as it's not too easy to get away with it. A few precautions will eliminate most of the cheaters, and the classic strategies will work for the others.